



Dell Networking S-Series

S4820T high-performance 1/10/40GbE top-of-rack switch

High-density, 1RU 48-port 1/10G BASE-T switch plus four 40GbE uplinks with non-blocking line-rate performance; feature-rich Dell Networking Operating System (FTOS); optimized for iSCSI, DCB and ToR applications for Dell 12G rack servers, blade servers with Dell Networking MXL blade switch, and storage solutions.

High Density 1/10G BASE-T Switch

The Dell Networking S-Series S4820T 1/10G BASE-T Top-of-Rack (ToR) switch is purpose-built for high performance data centers. By leveraging a non-blocking, cut-through (default mode is store and forward) switching architecture, the S4820T delivers line-rate L2/L3 features to maximize network performance. The S4820T design provides (48) 1/10G BASE-T ports that support 100Mb/1Gb/10Gb and four 40GbE QSFP+ uplinks. Each 40GbE QSFP+ uplink can be broken out into four 10GbE ports using breakout cables.

Priority-based Flow Control (PFC), Enhanced Transmission Selection (ETS), Data Center Bridge Exchange (DCBx) coupled with line rate throughput positions the S4820T as an ideal solution for data center ToR applications for servers, and storage arrays. In addition, the S4820T incorporates multiple architectural features that optimize data center network flexibility, efficiency, and availability. These features include IO panel to PSU airflow or PSU to IO panel airflow for hot/cold aisle environments, and redundant, hot-swappable power supplies and fans.

S4820T also supports Dell Networking's Open Automation Framework, which provides advanced network automation and virtualization capabilities for virtual data center environments. The Open Automation Framework is comprised of a suite of inter-related network management tools that can be used together or independently to provide a network that is flexible, available and manageable while helping to reduce operational expenses.

Key applications

- High-density 1/10G BASE-T ToR server aggregation in high-performance data center environments
- Design with the Z-Series core switch to create a two-tier, non-blocking 1/10/40GbE data center network architecture
- Lossless iSCSI storage deployments using DCB
- Enterprise, Web 2.0, and cloud service providers' data center networks for ToR and end of row applications

Key features

- 1/10GbE copper connectivity for maximum flexibility and investment protection
- 1.28 Tbps (full-duplex) non-blocking, cut-through (default mode is store and forward) switching fabric offers line-rate performance
- IO panel to PSU airflow or PSU to IO panel airflow
- Redundant, hot-swappable power supplies and fans

- Modular Dell FTOS software offers inherent stability as well as advanced monitoring and serviceability functions
- Supports jumbo frames for high-end performance in virtualized environments and IP storage/server communication
- 128 link aggregation groups with up to 8 members per group
- Support for L2 multipath using Virtual Link Trunking (VLT) & enhanced VLT (eVLT)
- Scalable L2/L3 Ethernet switching with QoS and standards-based IPv4/IPv6 features
- User port stacking support for up to 6 units that is managed as one logical device
- Open Automation Framework adds VM-awareness as well as automated configuration and provisioning capabilities to simplify the management of virtual network environments

1/10G BASE-T Cabling Distances

Cable Type	1G BASE-T	10G BASE-T
Cat 6 UTP	100m (330 ft)	55m (180 ft)
Cat 6 STP	100m (330 ft)	100m (330 ft)
Cat 6A UTP	100m (330 ft)	100m (330 ft)
Cat 7	100m (330 ft)	100m (330 ft)

Flexible, powerful
top-of-rack switch for
data centers of all sizes

Specifications: S4820T 1/10G BASE-T High-Performance Top-of-Rack Switch

Dell SKU description

S4820T 1/10G BASE-T

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, IO Panel to PSU Airflow

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, PSU to IO Panel Airflow

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x DC PSU, 2 x Fans, IO Panel to PSU Airflow

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x DC PSU, 2 x Fans, PSU to IO Panel Airflow

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, IO panel to PSU Airflow, TAA

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, PSU to IO Panel Airflow, TAA

Redundant power supplies

S4820T 1/10G BASE-T, AC Power Supply, IO Panel to PSU Airflow

S4820T 1/10G BASE-T, AC Power Supply, PSU to IO Panel Airflow

S4820T 1/10G BASE-T, DC Power Supply, IO Panel to PSU Airflow

S4820T 1/10G BASE-T, DC Power Supply, PSU to IO Panel Airflow

Fans

S4820T 1/10G BASE-T fan module, IO Panel to PSU Airflow

S4820T 1/10G BASE-T fan module, PSU to IO SR4 Panel Airflow

Optics

Transceiver, QSFP+, 40GbE SR Optics, 850nm Wavelength, 100-150m Reach on OM3/OM4

Transceiver, QSFP+, 40GbE eSR Optics, 850nm Wavelength, 300-400 Reach on OM3/OM4

Transceiver, QSFP+, 40GbE LR4 Long Reach, 4xWDM channel, 1310nm, 10km Reach on SMF

Cables

Cable, 40GbE QSFP+, Direct Attach Cable, 1m

Cable, 40GbE QSFP+, Direct Attach Cable, 5m

Cable, 40GbE QSFP+ to 4xSFP+ Direct Attach Breakout Cable, 5m

Cable, 40GbE MTP to 4xLC Optical Breakout Cable (optics not included), 5m

Cable, 40GbE QSFP+, Active Fiber Optic, 10m

Cable, 40GbE QSFP+, Active Fiber Optic, 50m

Software

Software, FTOS – Force10 Operating System Software, S4820T 1/10G BASE-T

Note: In-field change of airflow direction not supported.

Physical

48 line-rate 1/10G BASE-T ports

4 line-rate 40GbE QSFP+ ports

1 RJ45 console/management port with RS232 signaling

Size: 1 RU, 1.71" h x 17.09" w x 18.11" d (4.35 h x 43.4 w x 46.0 cm d)

Weight: 21.7 lbs (9.86 kg)

ISO 7779 A-weighted sound pressure level: 65 dBA at 78.8°F (26°C)

Power supply: 100–240 VAC 50/60 Hz

1) AC forward airflow

2) AC reverse airflow

Power supply: 40.5-60 VDC

1) DC forward airflow

2) DC reverse airflow

Max. thermal output: 1433 BTU/h

Max. current draw per system:

4.2A at 100/120V VAC 2.1A at 200/240VAC

10.4A at 40.5 VDC 7 A at 60VDC

Max. power consumption: 420W (at AC input or DC input)

Typ. power consumption: 360 Watts

Max. operating specifications:

Operating temperature: 32° to 104°F (0° to 40°C)

Operating humidity: 5 to 90% (RH), non-condensing

Operating altitude: 0ft to 6600ft above sea level

Max. non-operating specifications:

Storage temperature: –40° to 158°F (–40° to 70°C)

Storage humidity: 5 to 90% (RH), non-condensing

Redundancy

Hot swappable redundant power

Hot swappable redundant fans

User port stacking up to 6 units

Performance

MAC addresses: 128K

IPv4 routes: 16K

IPv6 routes: 8K (shared CAM space with IPv4)

Switch fabric capacity: 1.28 Tbps (full-duplex)

640 Gbps (half-duplex)

Forwarding capacity: 960 Mpps

Link aggregation: 8 links per group, 128 groups per stack

Queues per port: 4 queues

Layer 2 VLANs: 4K

MSTP : 64 instances

Line-rate Layer 2 switching: all protocols, including IPv4 and IPv6

Line-rate Layer 3 routing: IPv4 and IPv6

IPv4 host table size: 16K

IPv6 host table size: 8K

IPv4 Multicast table size: 8K

LAG load balancing: based on Layer 2, IPv4 or IPv6 headers

Latency: 3.3 usec

Packet buffer memory: 9MB

CPU memory: 2GB

IEEE Compliance

802.1AB LLDP

802.1ag Connectivity fault Management

802.1D Bridging, STP

802.1p L2 Prioritization

802.1Q VLAN Tagging, Double VLAN Tagging, GVRP

802.1Qaz Enhanced Transmission Selection (ETS)

802.1Qbb Priority-based Flow Control (PFC)

DCBx (CIN, CEE, and IEEE2.5)

802.1s MSTP

802.1w RSTP

802.1X Network Access Control

802.3ab Gigabit Ethernet (1000BASE-T)

802.3ac Frame Extensions for VLAN Tagging

802.3ad Link Aggregation with LACP

802.3ae 10 Gigabit Ethernet (10GBASE-X)

802.3ba 40 Gigabit Ethernet (40GBase-SR4, 40GBase-CR4) on optical ports

802.3u Fast Ethernet (100BASE-TX) on mgmt ports

802.3x Flow Control

802.3z Gigabit Ethernet (1000BASE-X)

ANSI/TIA-1057 LLDP-MED

Force10 PVST+

MTU 12,000 bytes

RFC and I-D Compliance

General Internet Protocols

768 UDP 1350 TFTP

793 TCP 2474 Differentiated Services

854 Telnet 3164 Syslog

959 FTP 5880 BFD

1321 MD5

General IPv4 Protocols

791 IPv4 1812 Routers

792 ICMP 1858 IP Fragment Filtering

826 ARP 2131 DHCP (relay)

1027 Proxy ARP 2338 VRRP

1035 DNS (client) 3021 31-bit Prefixes

1042 Ethernet Transmission 3046 DHCP Option 82

1305 NTPv3 3069 Private VLAN

1519 CIDR 3128 Tiny Fragment Attack Protection

1542 BOOTP (relay)

General IPv6 Protocols

2460 IPv6 1858 IP Fragment Filtering

2461 Neighbor Discovery 2675 Jumbograms

(partial) 3587 Global Unicast

2462 Stateless Address 4291 Address Format

Autoconfiguration (partial) Addressing

2463 ICMPv6

RIP

1058 RIPv1 2453 RIPv2

OSPF

2154 MD5 3623 Graceful Restart

1587 NSSA 4222 Prioritization and

2328 OSPFv2 Congestion Avoidance

2370 Opaque LSA

BGP

1997 Communities

2385 MD5

RFC 2545 BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing

2439 Route Flap Damping

2796 Route Reflection

2842 Capabilities

2858 Multiprotocol Extensions

2918 Route Refresh

3065 Confederations

4360 Extended Communities

4893 4-byte ASN

5396 4-byte ASN representations

draft-ietf-idr-bgp4-20 BGPv4

draft-ietf-idr-restart-06 Graceful Restart

draft-michaelson-4byte-as-representation-05

4-byte ASN Representation (partial)

IS-IS

RFC 1195 Routing IPv4 with IS-IS

RFC 5308 Routing IPv6 with IS-IS

Multicast

1112 IGMPv1 3569 SSM for IPv4

2236 IGMPv2 4541 IGMPv1/v2 Snooping

3376 IGMPv3

draft-ietf-pim-sm-v2-new-05 PIM-SM

Network Management

1155 SMIv1

1156 Internet MIB

1157 SNMPv1

1212 Concise MIB Definitions

1215 SNMP Traps

1493 Bridges MIB

1850 OSPFv2 MIB

1901 Community-based SNMPv2

2011 IP MIB

2012 TCP MIB

2013 UDP MIB

2096 IP Forwarding Table MIB

2570 SNMPv3

2571 Management Frameworks

2572 Message Processing and Dispatching

2576 Coexistence Between SNMPv1/v2/v3

2578 SMIv2

2579 Textual Conventions for SMIv2

2580 Conformance Statements for SMIv2

2618 RADIUS Authentication MIB

2665 Ethernet-like Interfaces MIB

2674 Extended Bridge MIB

2787 VRRP MIB

2819 RMON MIB (groups 1, 2, 3, 9)

2863 Interfaces MIB

2865 RADIUS

3273 RMON High Capacity MIB

3416 SNMPv2

3418 SNMP MIB

3434 RMON High Capacity Alarm MIB

3580 802.1X with RADIUS

5060 PIM MIB

ANSI/TIA-1057 LLDP-MED MIB

draft-grant-tacacs-02 TACACS+

draft-ietf-idr-bgp4-mib-06 BGP MIBv1

IEEE 802.1AB LLDP MIB

IEEE 802.1AB LLDP DOT1 MIB

IEEE 802.1AB LLDP DOT3 MIB

ruzin-mstp-mib-02 MSTP MIB (traps)

sFlowv5

sFlowv5 sFlowv5 MIB (version 1.3)

Force10 BGP MIB

FORCE10-BGP4-V2-MIB (draft-ietf-idr-bgp4-mibv2-05)

FORCE10-IF-EXTENSION-MIB

FORCE10-LINKAGG-MIB

FORCE10-COPY-CONFIG-MIB

FORCE10-MON-MIB

FORCE10-PRODUCTS-MIB

FORCE10-SS-CHASSIS-MIB

FORCE10-SMI

FORCE10-SYSTEM-COMPONENT-MIB

FORCE10-TC-MIB

FORCE10-TRAP-ALARM-MIB

FORCE10-FORWARDINGPLANE-STATS-MIB

Regulatory Compliance

Safety

UL/CSA 60950-1, Second Edition

EN 60950-1, Second Edition

IEC 60950-1, Second Edition Including all National Deviations and Group Differences

EN 60825-1 Safety of Laser Products Part 1: Equipment Classification Requirements and User's Guide

EN 60825-2 Safety of Laser Products Part 2: Safety of Optical Fibre Communication Systems

FDA Regulation 21 CFR 1040.10 and 1040.11

Emissions

Australia/New Zealand: AS/NZS CISPR 22 Class A

Canada: ICES-003, Issue-4, Class A

Europe: EN 55022:2006+A1:2007 (CISPR 22), Class A

Japan: VCCI V3/2009 Class A

USA: FCC CFR 47 Part 15, Subpart B, Class A

Immunity

EN 300 386 V1.4:2008 EMC for Network Equipment

EN 55024: 1998 + A1 + A2

EN 61000-3-2: Harmonic Current Emissions

EN 61000-3-3: Voltage Fluctuations and Flicker

EN 61000-4-2: ESD

EN 61000-4-3: Radiated Immunity

EN 61000-4-4: EFT

EN 61000-4-5: Surge

EN 61000-4-6: Low Frequency Conducted Immunity

RoHS

All S-Series components are EU RoHS compliant.

